

St Mary Redcliffe and Temple School Sixth Form

Year 11 Into Year 12 Transition Task

Subject: Chemistry (OCR A)

SMRT Sixth Form takes students from a wide range of schools who have studied a variety of GCSE syllabuses. We want to ensure that everybody is equally able to access the content of the A Level and so the following tasks give you a chance to ensure you are fully prepared.

To ensure you are ready to fully access the A Level Syllabus you should attempt these tasks:

1. Complete a report on The History of the Atom (guidance below)
2. Complete this Chemistry based escape room:
<https://testtuberevise.com/portfolio/escape-the-atom/>

Entry Requirements to study A Level Chemistry:

- 65 in Combined Science **and** a 6 in Maths or
- 6 in Separate Chemistry **and** a 6 in Maths
- Any student doing all Biology, Chemistry and Physics would need a minimum of 77 for Combined Science or 777 for Separate Science and a 6 in Maths

What happens if you fall short of this requirement?

You will be able to take an entrance test (approx. 1hr) which you will need to pass. The questions in the test will be common to all exam boards and will be GCSE exam style questions. There will be a focus on the mathematical elements of the course as well as the higher chemistry concepts.

Support Materials and Further Reading:

Making a head start with Chemistry

This is a resource available to you to give you a Head Start to A-Level [Chemistry](#)

Reading around the subject

1. Periodic Tales: The Curious Lives of the Elements by Hugh Aldersley-Williams (ISBN-10: 0141041455)
2. The Disappearing Spoon by Sam Kean (ISBN-10: 0316388270)
3. A Short History of Nearly Everything by Bill Bryson (ISBN-10: 9781784161859)
4. The Periodic Table by Primo Levi (ISBN-10: 0141185147)

5. Bad Science

Videos/TV Programs

1. Chemistry: A Volatile History – found on BBC iPlayer
2. The Modern Alchemist – A Royal Institution Christmas Lecture - <https://www.rigb.org/christmaslectures/watch/2012/the-modern-chemist>
3. Subscribe to 'Machemguy' on YouTube who has created a 'Prep for A-level Chemistry' playlist

Expectations

For each lesson, you will need to have the following things:

1. Pens (black, blue and purple)
2. Pencil
3. Scientific calculator
4. Ruler
5. A ring binder
6. Printed version of the data sheet <https://www.ocr.org.uk/Images/363792-unit-h032-and-h432-data-sheet.pdf> (You can print this off when you get to 6th form if you do not have access to a printer at home)
7. A plastic wallet



Textbook

You will have access to a digital version of the textbook via an online platform called Kerboodle. Logins will be shared when you arrive in September. You get a physical copy of the textbook in Year 13

Revision guides

In September, we will create an opportunity for you to purchase the revision bundle below for a reduced rate of £23.50 – this is optional.

- A-Level Chemistry: OCR A Year 1 & 2 Complete Revision & Practice with Online [Edition](#)
- A-Level Chemistry: OCR A Year 1 & 2 Exam Practice Workbook - includes [Answers](#)

Task 1: History of the Atom

Introduction

The idea of an atom was first conceived by the ancient philosophers of Greece. In the fifth century BC, Leucippus and his student Democritus suggested that there were small indivisible particles, which he called atoms – from the Greek *atomos* meaning ‘uncuttable’.

This idea of atoms has been built on by many other scientists over hundreds of years. These scientists have drawn conclusions from a variety of different experiments. Some conclusions have been arrived at when scientists were researching other questions, and some ideas have been proven by designing a specific experiment.

A model of the structure of the atom is still evolving today. Particle physicists are working at particle accelerators like CERN, on newly discovered quarks.

In this Webquest you will be researching one of the models to have been developed over the years to describe the structure of an atom.

Your task is to produce a report into the different models of the atom that has been developed by scientists since 1890.

Your research should be done online, using the web links provided below as well as any other credible sources you feel would be useful.

Your report will should be typed and include images and, where appropriate, diagrams of the experiments conducted.

Your report should include:

- Information about the key scientists who developed this model of the atom
- A description of what they believed the atom looked like when they began their work
- The key experiments that they did and what they found out from them
- The conclusions that they drew from their work and the model of the atom that developed from their work
- Information about when their ideas were suggested.

The different models of the atom that you need to research are:

- the plum pudding model of an atom
- the solar system or planetary model of an atom
- electron cloud model of an atom
- the discovery of the neutron
- current developments.

The report should be typed using size 11, arial font and no more than 3 sides long. It should be printed onto A4 paper.

Sources

General websites that are useful:

[brief overview of atomic models](#)

[early days of atom theory](#)

The plum pudding model of an atom:

[What is the plum pudding model?](#)

[How did Rutherford's gold foil experiment disprove the plum pudding model?](#)

The solar system or planetary model of an atom:

[why Rutherford developed his model - animation](#)

[how Rutherford viewed the atom](#)

[the planetary model](#)

[the nuclear atom](#)

Electron cloud model of an atom:

[Modern Atomic Theory: Models](#)

[What Is The Electron Cloud Model?](#)

[the atomic nucleus](#)

The discovery of the neutron

[Discovery of the neutron](#)

[the discovery of the neutron](#)

Current developments:

[the discovery of the top quark](#)

[the Higgs boson](#)

[What is the Large Hadron Collider?](#)